

Please amend the claims as follows:

Part B1

1. (Amended) A switching circuit to linearly conduct current between a source and a load, the circuit comprising:

a switching device coupled between the source and the load, the switching device having a conductive state in which a first portion of the current is conducted between the source and the load during a first phase of operation, the first phase of operation dependent on the magnitude of the current; and

a current steering circuit coupled between the source and the load, the current steering circuit having a conductive state in which a second portion of the current is conducted between the source and the load during a second phase of operation in which the magnitude of the current is below a non-zero threshold value.

Part C1

10. (Amended) A magnetic resonance imaging (MRI) system to perform an MRI scan in accordance with a pulse sequence, the pulse sequence including at least a first pulse, the system comprising:

a gradient coil assembly to generate a gradient magnetic field during the MRI scan;

an amplifier to drive the gradient coil assembly such that the gradient coil assembly generates the gradient magnetic field in accordance with the pulse sequence; and

a switch assembly to provide a conductive path between the amplifier and the gradient coil assembly, the switch assembly comprising:

a first switching device having a conductive state during a first portion of the first pulse of the pulse sequence; and

a second switching device coupled in parallel with the first switching device, the second switching device having a conductive state during a second portion of the first pulse of the pulse sequence during

Part C2 cont.

Subj. Cont *Act 2* *Ind*
which a current from the amplifier to the gradient coil assembly is below a non-zero threshold value,

wherein the conductive path is provided between the amplifier and the gradient coil assembly during substantially the entire duration of the first pulse.

Subj. Cont
18. (Amended) A magnetic resonance imaging (MRI) system for acquiring MRI data, the system comprising:

a processor to control acquisition of the MRI data in accordance with a program stored in a memory, the program including an imaging protocol having a sequence of gradient pulses and a sequence of detection pulses;

a gradient amplifier to drive the gradient coil assembly in accordance with the sequence of gradient pulses;

Act 3 Cont
an MRI scanner to perform an MRI scan in accordance with the stored imaging protocol, the MRI scanner comprising a magnet, a gradient coil assembly, and an RF coil assembly, the gradient coil assembly generating a gradient magnetic field in accordance with the sequence of pulses;

a switch assembly coupled between the gradient amplifier and the gradient coil assembly to provide a conductive path therebetween, the switch assembly comprising:

a first switching device having a conductive state during a first portion of a first gradient pulse; and

a second switching device coupled in parallel with the first switching device, the second switching device having a conductive state during a second portion of the first gradient pulse during which a current from the amplifier to the gradient coil assembly is below a non-zero threshold value,

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End

wherein the conductive path is provided between the gradient amplifier and the gradient coil assembly during substantially the entire duration of the first pulse; and
an RF detector coupled to the RF coil to detect MRI data resulting from the MRI scan in accordance with the sequence of detection pulses.

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End

23. (Amended) A method for performing a magnetic resonance imaging (MRI) scan with an MRI system including a gradient coil assembly, the MRI scan being performed in accordance with a pulse sequence, the method comprising:

receiving a pulse sequence;

generating a current to drive the gradient coil assembly in accordance with the pulse sequence, the current comprising a plurality of current pulses;

conducting the current to the gradient coil assembly through a switch assembly, the switch assembly comprising a first switching device and a second switching device coupled in parallel with the first switching device;

placing the first switching device in a conductive state during a first portion of a first current pulse, the conductive state of the first switching device dependent on the magnitude of the current during the first current pulse; and

placing the second switching device in a conductive state during a second portion of the first current pulse, such that the current is conducted to the gradient coil assembly during substantially the entire duration of the first current pulse wherein placing the second switching device in the conductive state occurs when the absolute value of the magnitude of the current is below a non-zero threshold value.
